Significance of harmonized monitoring and data compilation to advance microplastic studies

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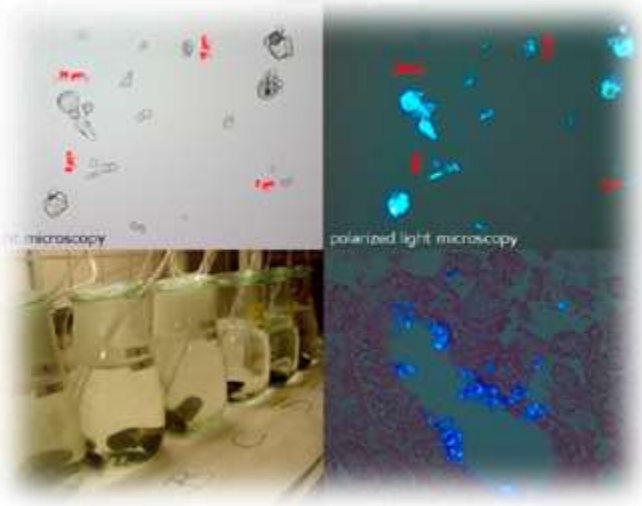
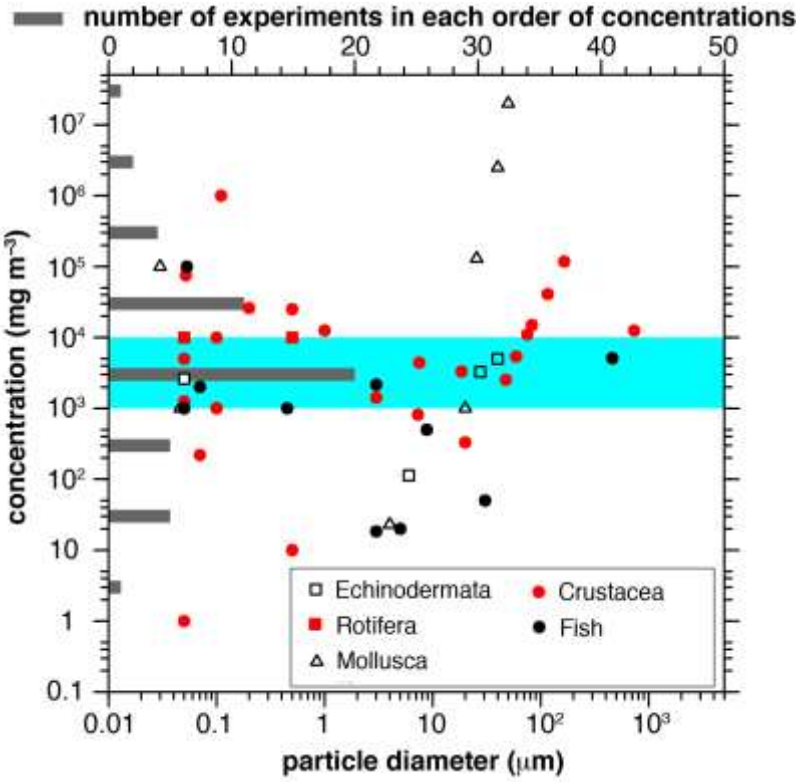


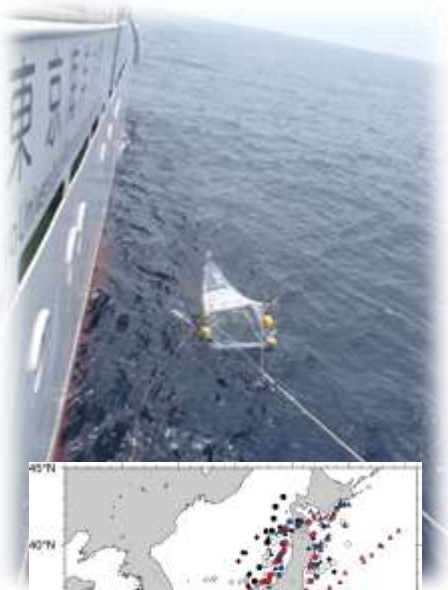
damages (feeding rate ↓, mortality↑etc…) were revealed

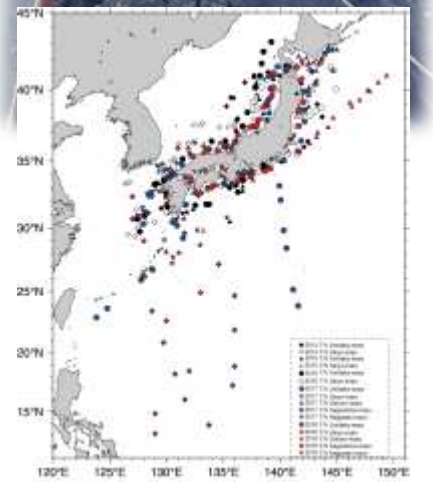
> 1000 mg/m^3



Laboratory-based studies to date have investigated biological damages on aqua biota exposed to small microplastics with different diameters and concentrations

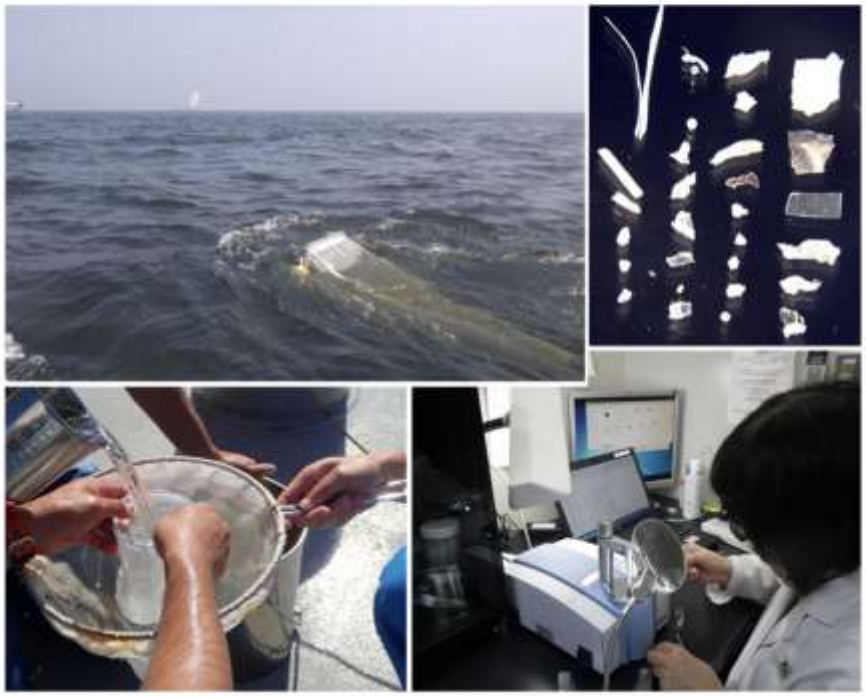
Isobe et al., (2019; Nature Communications)



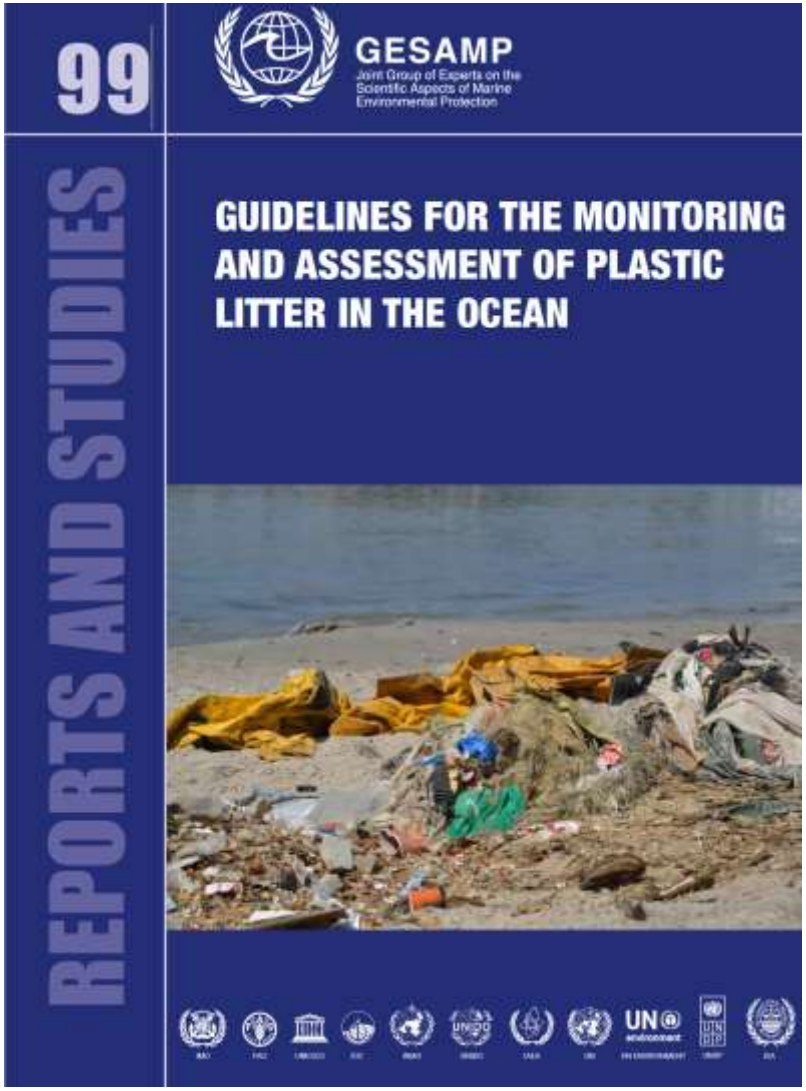


The damaged revealed in organisms in laboratory-based studies will be realized in the nature?

We have to monitor microplastics persistently in the actual ocean on the basis of the standardized/harmonized protocol.



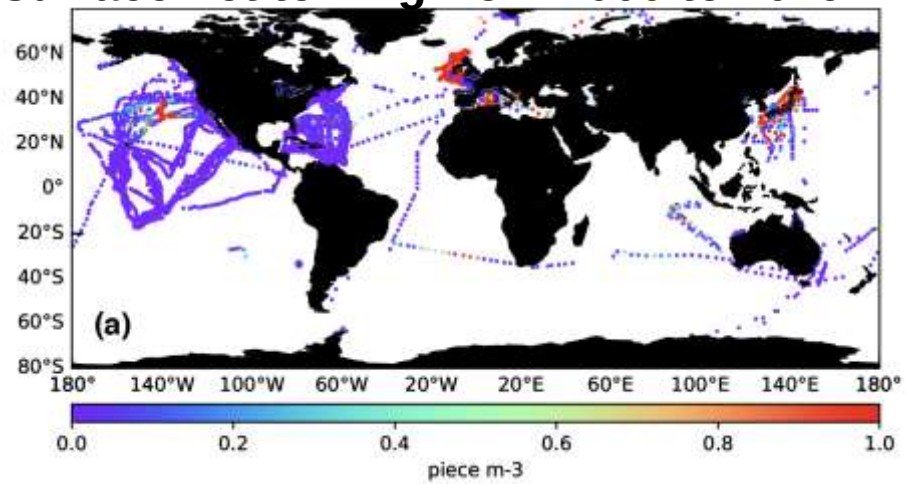
Michida et al., (2019)
Ministry of the Environment, JAPAN

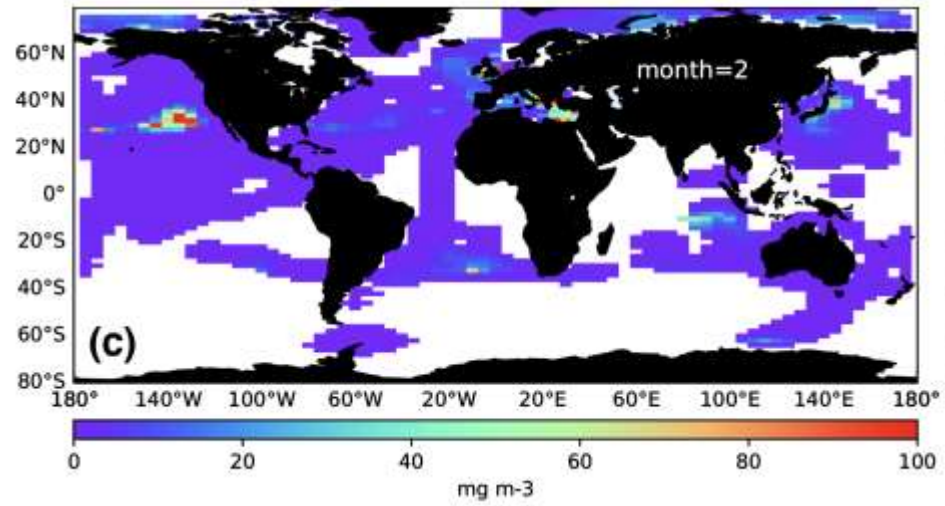


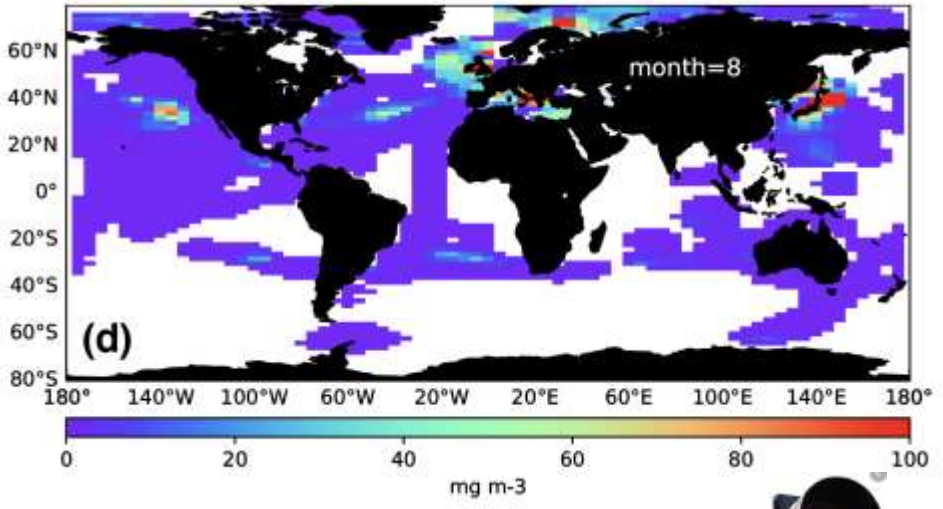
GESAMP (2019)

Latest guidelines provides a standardized method integrated guidelines published to date.

> 7000 data of microplastic abundance obtained by surface net towing from 2000 to 2019.



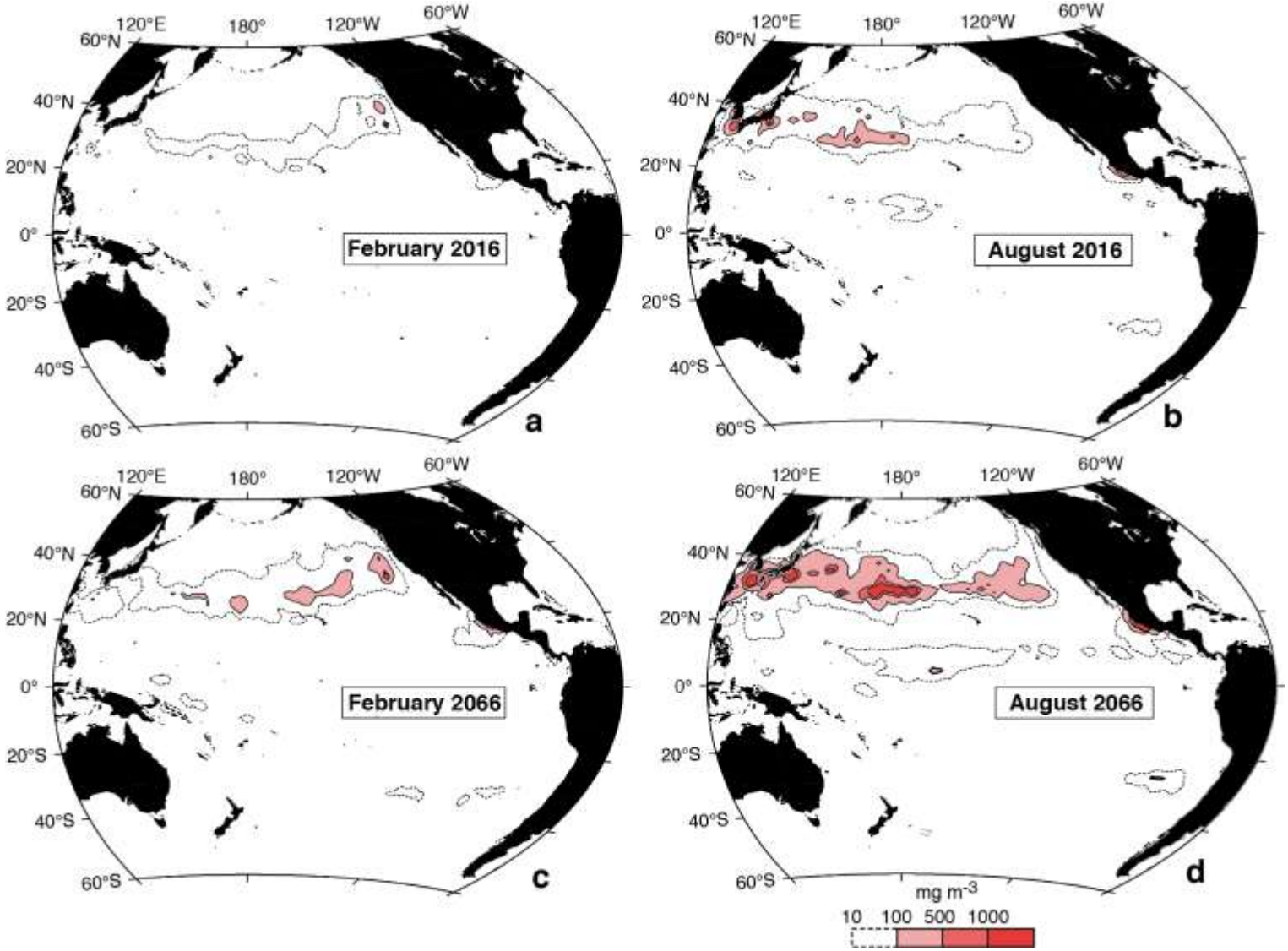




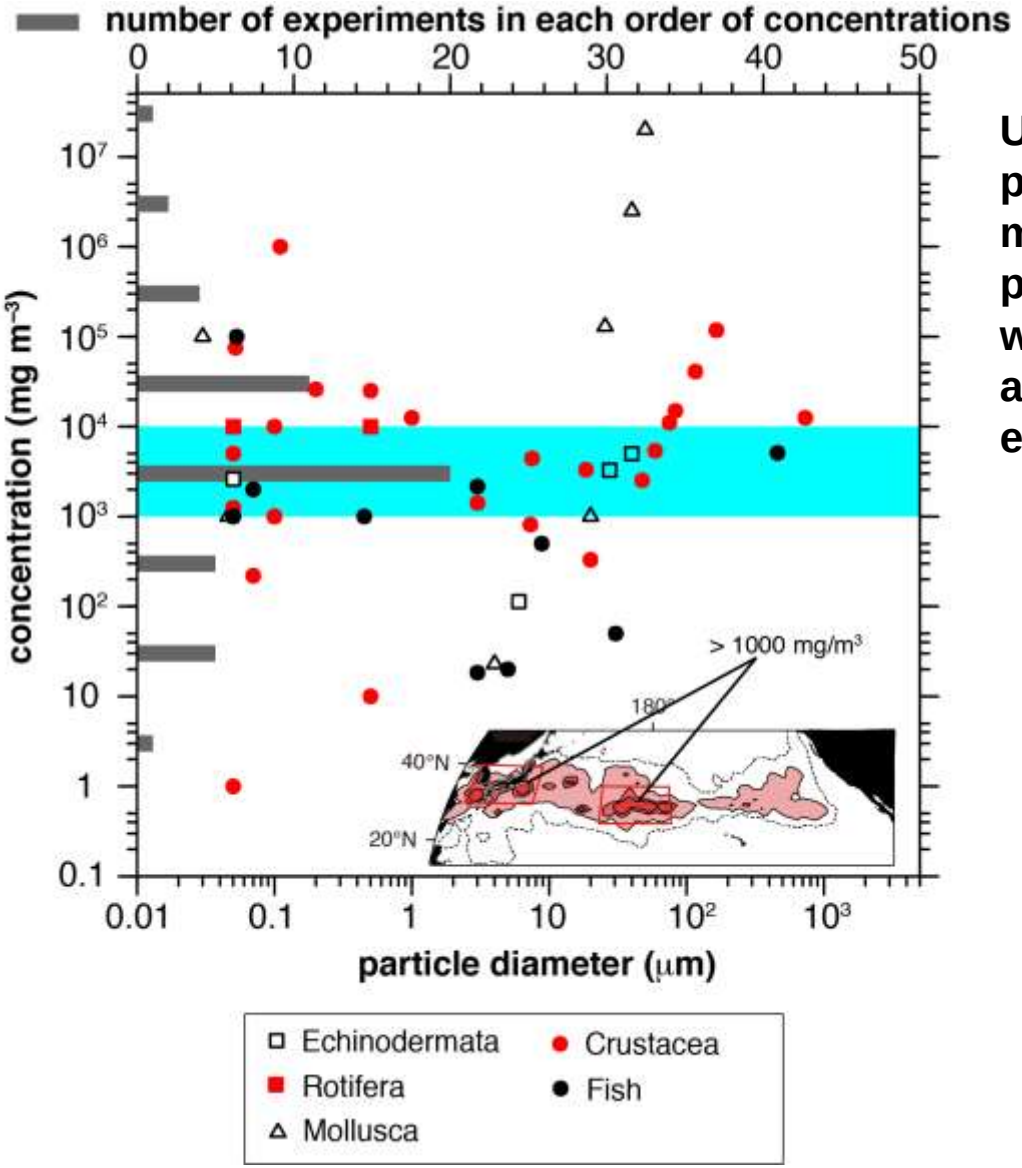
Processed data of surface microplastic abundance (mg/m^3) in February and August using satellite-derived winds and an optimum interpolation method

Isobe et al. (in preparation)

Microplastic abundance after 50 years predicted by a numerical simulation



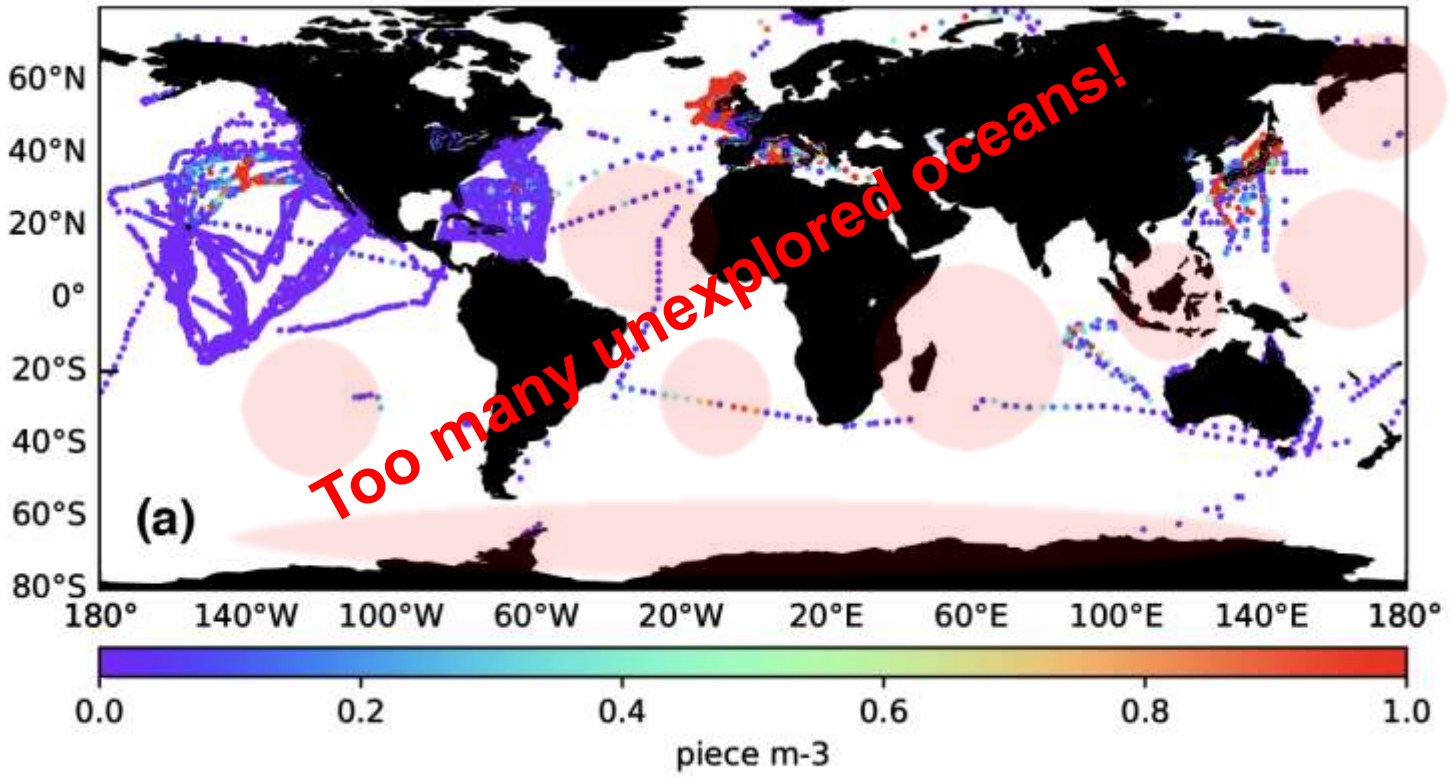
Isobe et al., (2019; Nature Communications)



Unless the amount of mismanaged plastic waste is reduced substantially, marine plastic pollution is likely to proceed to a point of no return, beyond which marine organisms will be harmed, as has been shown in laboratory experiments.

Isobe et al., (2019; Nature Communications)

✓ We have to persistently **monitor the status of marine plastic litter** in the current oceans.



✓ **Observation network using a harmonized protocol of microplastic survey is required among different countries**

✓ **A framework of international data center for marine plastic litter is required to synthesize the observed data**